Psuedocode and How to write any while loop

Pseudocode is an informal description of an algorithm, written for a human, not a computer. It resembles computer code in its basic structure, in that usually retains structures like functions, if-else statements, and loops, but it may leave out technical details specific to a certain programming language. The goal of writing an algorithm in pseudocode is to allow a human to (1) read and understand the code and (2) easily translate the algorithm into any programming language.

For instance, in pseudocode, you can say:

```
x = get integer from keyboard
```

or

```
if x is between 0 and 100, then
  print x with two decimal places
```

whereas those are not true statements in Python. Psuedocode is not concerned with syntax, but with the semantics of the algorithm.

How to write a while loop

1. Write pseudocode for what the loop does by explicitly repeating lines of pseudocode until you've repeated the same code at least twice.
2. Include an "if" statement in your code that will be True if you want the loop to keep going, and False if you want the loop to stop.
3. Make sure the pseudocode repeats the "if" statement at least twice.
4. Find the statements between consecutive "if" statements. These statements will become the body of the loop.
5. The "if" test will become the "while" test.
6. If there is any pseudocode before the first "if" test, if will go immediately before the start of the while loop (outside of the body).

Using this idea will sometimes result in the same line(s) of code being placed both inside the loop and before the loop. This is not a mistake; sometimes this happens and is considered OK style. This is sometimes called "a loop and a half" because you have the entire loop plus some fraction of the statements inside the body of the loop repeated before it starts.